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ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OW–2019–0675; FRL 5880-03-OW]

Ambient Water Quality Criteria to Address Nutrient Pollution in Lakes and Reservoirs

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of availability.

SUMMARY: The Environmental Protection Agency (EPA) is announcing the release of *Ambient Water Quality Criteria to Address Nutrient Pollution in Lakes and Reservoirs*. These national recommended criteria are models for total nitrogen and total phosphorus concentrations in lakes and reservoirs to protect three different designated uses–aquatic life, recreation, and drinking water source protection–from the adverse effects of nutrient pollution. Nutrient pollution can degrade the conditions of water bodies worldwide, and the effects of excess nitrogen and phosphorus may be particularly evident in lakes and reservoirs. These recommended criteria are based on stressor-response models, which link nutrient pollution stressors (nitrogen, phosphorus) to responses associated with protection of designated uses. Models and associated criteria provided in this document are based on national data. States and authorized tribes can also incorporate local data, when available, into the national models, helping states and authorized tribes to derive numeric nutrient criteria that apply relationships estimated from national data while accounting for unique local conditions. These recommended criteria replace numeric nutrient criteria recommended by EPA in 2000 and 2001 for lakes and reservoirs for 12 out of 14 ecoregions of the conterminous United States. This document was released for 60-day public comment in the *Federal Register* on May 22, 2020. The comment period was extended 30 days, for a total comment period of 90 days. EPA has considered the comments, made minor revisions to the draft document in response, and published this final document to provide recommendations for states and authorized tribes interested in establishing

water quality standards under the Clean Water Act (CWA) to protect the designated uses of their lakes and reservoirs from nutrient pollution.

ADDRESSES: EPA has established a docket for this action under Docket ID No. **EPA-HQ-OW-2019-0675**. All documents in the docket are listed on the https://www.regulations.gov web site. Although listed in the index, some information is not publicly available, *e.g.* confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available electronically through https://www.regulations.gov.

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SUPPLEMENTARY INFORMATION:

I. What is nutrient pollution, and why is EPA concerned about it?

Nutrient pollution, or the excess loading of nitrogen and phosphorus, can degrade the conditions of water bodies and potentially make them unsafe for aquatic life, recreation, or to use as drinking water sources. Nutrient pollution stimulates excess growth of algae, which can limit the recreational use of lakes and reservoirs. Overabundant algae also increase the amount of organic matter in a lake or reservoir, which, when decomposed, can depress dissolved oxygen concentrations below levels needed to sustain aquatic life. In extreme cases, the depletion of dissolved oxygen causes fish kills. Nutrient pollution can also stimulate the excess growth of nuisance algae, such as cyanobacteria, which can produce cyanotoxins that are toxic to animals and humans. Elevated concentrations of these cyanotoxins can reduce the suitability of a lake or reservoir for recreation and as a source of drinking water.

II. Information on Recommended Ambient Water Quality Criteria for Lakes and Reservoirs

These recommended ambient water quality criteria for lakes and reservoirs are part of EPA's ongoing efforts to support states and authorized tribes in developing and adopting numeric nutrient criteria. Numeric nutrient criteria provide an important tool for managing the effects of nutrient pollution by providing nutrient goals that support the protection and maintenance of the designated uses of the waters of the United States. Recognizing the utility of such criteria, EPA published recommended numeric nutrient criteria for lakes and reservoirs for 12 out of 14 ecoregions of the conterminous United States from 2000 to 2001. These criteria were derived by analyzing available data on the concentrations of total nitrogen, total phosphorus, chlorophyll *a*, and Secchi depth. Scientific understanding of the relationships between nutrient concentrations and deleterious effects in lakes and reservoirs has increased since 2001, and standardized, high-quality data collected from lakes and reservoirs across the United States have become available. In this document, EPA describes analyses of these new data and provides models to derive numeric nutrient criteria for lakes and reservoirs that replace the recommended numeric nutrient criteria of 2000 and 2001. These models and associated criteria are provided in accordance with the provisions of CWA Section 304(a) for EPA to revise national recommended ambient water quality criteria from time to time to reflect the latest scientific knowledge. The ecological responses on which these models and criteria are based were selected by applying a risk assessment approach to explicitly link nutrient concentrations to the protection of designated uses.

The recommended ambient water quality criteria for lakes and reservoirs are based on the available data from EPA's National Lakes Assessment (NLA) survey. The NLA surveys are carried out under EPA's National Aquatic Resource Survey program, which conducts water quality and biological surveys of the nation's surface waters in partnerships with state and authorized tribal water quality monitoring programs (https://www.epa.gov/national-aquatic-

resource-surveys). The NLA surveys were designed using random sampling of lakes and reservoirs across the United States, and as a result, the collected data represent the characteristics of the full population of United States lakes and reservoirs. The NLA surveys were implemented using standardized field sampling and analytical methods, with internal oversight and independent quality control surveillance yielding data of high quality and statistical rigor.

The stressor-response models used in generating the recommended ambient water quality criteria are based on previously published EPA technical guidance (U.S. EPA 2010, *Using stressor-response relationships to derive numeric nutrient criteria*, Office of Water, U.S. Environmental Protection Agency, Washington, D.C., EPA-820-S-10-001), as well as scientific peer-reviewed statistical and modeling techniques. Models provided in the recommended criteria document are based on national data, but states and authorized tribes may have additional data collected during routine monitoring. Incorporating these local data into the national models can refine and improve the precision of the stressor-response relationships on a site-specific basis. EPA stands ready to assist states and authorized tribes to add their data into the models through the Nutrient Scientific Technical Exchange Partnership & Support (N-STEPS) program. In the appendices of the criteria document, EPA describes case studies in which state monitoring data have been combined with national data, yielding models that can be used to derive numeric nutrient criteria that account for both unique local conditions and national, large-scale trends.

III. What are CWA Section 304(a) recommended water quality criteria?

CWA Section 304(a) water quality criteria are non-binding recommendations developed by EPA under authority of CWA Section 304(a) based on the latest scientific knowledge on the effects that pollutant concentrations have on aquatic species, recreation, and/or human health.

CWA Section 304(a)(1) directs EPA to develop, publish, and, from time to time, revise criteria for water quality accurately reflecting the latest scientific knowledge. Water quality criteria developed under CWA Section 304(a) are based on data and scientific judgments on the relationship between pollutant concentrations and environmental and human health effects.

CWA Section 304(a) recommended criteria do not reflect consideration of economic impacts or the technological feasibility of meeting pollutant concentrations in ambient water.

CWA Section 304(a) recommended criteria provide non-binding guidance to states and authorized tribes in adopting water quality standards that ultimately provide a basis for controlling discharges of pollutants. Under the CWA and its implementing regulations, states and authorized tribes are to adopt water quality criteria to protect designated uses (*e.g.,* aquatic life, recreational use). EPA's recommended water quality criteria are not regulations and do not constitute legally binding requirements. States and authorized tribes may adopt other scientifically defensible water quality criteria that differ from these recommendations. The CWA and its implementing regulations require that any new or revised water quality standards adopted by the states and authorized tribes be scientifically defensible and protective of the designated uses of the bodies of water. States and authorized tribes have the flexibility to do this by adopting criteria based on (1) EPA's recommended criteria, (2) EPA's criteria modified to reflect site-specific conditions, or (3) other scientifically defensible methods.

IV. Use of the Recommended Ambient Water Quality Criteria for Lakes and Reservoirs by States and Authorized Tribes

EPA is publishing the recommended ambient water quality criteria for lakes and reservoirs for consideration by states and authorized tribes as they adopt numeric nutrient criteria to protect aquatic life, recreation, and drinking water sources from nutrient pollution. States and authorized tribes could consider using the recommendations as an alternative to or as a supplement of other scientifically defensible approaches. States and authorized tribes may also modify the criteria to reflect site-specific conditions or establish criteria based on other scientifically defensible methods (40 CFR 131.11(b)). These updated CWA Section 304(a) recommended nutrient criteria for lakes do not, as a general matter, compel a state or authorized tribe to revise current EPA approved and adopted criteria, Total Maximum Daily Load nutrient load targets, or nitrogen or phosphorus numeric values established by other scientifically

defensible methods. As part of its triennial review, if a state or authorized tribe uses its discretion to not adopt new or revised nutrient criteria based on these CWA Section 304(a) recommended criteria, then the state or authorized tribe shall provide an explanation when it submits the results of its triennial review (40 CFR 131.20(a)).

V. What changed between the draft and final criteria?

Changes in the final recommended criteria document, compared to the May 2020 draft posted for public comment, include technical revisions to the models limited to the parameter estimates for the zooplankton model, which were updated to reflect a slight change in how the model calculates seasonal mean biomasses of phytoplankton and zooplankton. Other changes include the addition of an appendix that provides an example workflow for identifying appropriately protective numeric nutrient criteria using the interactive tools, as well as minor editorial revisions that clarify or expand on existing text.

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